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THE CASE FOR DIRECT INJECTION OF PENICILLIN INTO THE UDDER

BY

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AND

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STRATHAVEN

The use of penicillin in the treatment of mastitis has not met with unqualified success. While the general experience of practitioners has been confirmed by recent reports indicating the effectiveness of penicillin in *Str. agalactiae* infections, penicillin therapy of other types of mastitis is much less satisfactory.

The two basic principles of successful penicillin therapy are:—

1. The presence of a sensitive organism.

2. The administration of the agent in such a manner as to produce a bactericidal concentration over a sufficient period of time at the seat of infection.

Bearing these facts in mind, it is evident that, in the presence of susceptible organisms, failure of penicillin therapy must be due to incomplete fulfilment of the essentials of the second basic principle. In other words, the penicillin has not reached the locus of infection or has not attained bactericidal level for a sufficient time.

Since the majority of *Str. agalactiae* infections are initially mild, with only slight pathological changes in the udder, penicillin administered *via* the teat readily diffuses throughout all parts of the gland. A bactericidal concentration is easily produced and maintained and the results of therapy are excellent.

On the other hand, in all cases of acute mastitis there exists a severe inflammatory reaction. This process involves swelling and closure of the smaller milk ducts and/or blockage of these ducts by inflammatory products such as coagulated fibrin, necrotic tissue, or pus.

Under such circumstances diffusion of any drug administered *via* the teat is held to be greatly reduced or even limited to a small area around the base of the teat.

In the authors' opinion it is this "inflammatory barrier" which presents the greatest obstacle to successful penicillin treatment of acute mastitis caused by penicillin-sensitive organisms; and since there is evidence that the physiological "blood-udder barrier" is not readily surmounted, the value of parenteral treatment even at high levels must remain doubtful.

A limited degree of success in by-passing the "inflammatory barrier" has been obtained by the authors, using aqueous solutions of penicillin injected directly into the parenchyma of the udder or into the seat of suspected walled-off foci of disease.

The indications for this method of penicillin administration seem to be:—

1. Those cases of mastitis where treatment by penicillin *via* the teat has resulted in resolution of part of the gland with persistence of a localised area of disease. (Such areas are usually found high up in a hind quarter and far forward in a fore quarter.)

2. Those cases of severe mastitis where prognosis for the gland is hopeless but toxaemia threatens the patient's life.

Direct injection has proved to be of no value in *C. pyogenes* mastitis or in mastitis showing extensive fibrosis.

This method of treatment has been used where indicated since August, 1945, and a few selected cases are reported.

Case Reports

S. L.—Ayrshire cow at point of calving. This cow was first seen on 15/1/47. She had a hot, swollen and painful L.H. quarter, and was completely off her food; temperature 106° F. The secretion from the gland was not markedly different from the healthy quarters, but showed a large sediment on centrifugation with the presence of large numbers of leucocytes and numerous clumps of staphylococci. Treatment given was 100,000 units penicillin in water *via* the teat. On 16/1/47 there was no marked change either in the general health of the cow or in the appearance of the affected quarter. Again 100,000 units in water were given *via* the teat. On 17/1/47 the cow was still very sick, the temperature as on the two previous days being still 106° F. The gland was showing resolution in the lower region, its upper part being if anything slightly larger and certainly firmer than before. She had calved and cleansed since the previous visit.

Treatment.—Using antiseptic precautions 100,000 units of penicillin in 10 c.c. water were injected at each of two points into the approximate centre of the persisting inflammatory region.

On the following day the swelling was subsiding, the cow was eating and the temperature had fallen to 102° F. Again two injections each of 100,000 units were directly given, into the parenchyma. Complete recovery followed, the quarter giving full milk.

L. V.—Ayrshire cow, 24 hours calved. This cow was recumbent, showing typical symptoms of milk fever. A good response to calcium borogluconate was obtained and when she rose it was evident that the R.H. quarter was abnormal. It was greatly swollen and very much firmer than the others and the secretion was very small in amount and of a watery consistence. Staphylococci were abundant in a direct smear. (26/8/49.)

Treatment.—300,000 units penicillin in water were injected *via* the teat. The following day, 27/8/49, the quarter was unchanged and 400,000 units penicillin were injected into four places deep in the parenchyma. On the 30th, the quarter was considerably smaller and the secretion was approaching normal milk. 500,000 units penicillin were injected into the parenchyma. When seen on 9/9/49 the quarter was apparently normal and giving good milk.

R. R.—Ayrshire heifer, due to calve on 10/4/47. On 5/4/47 she was seen to be ill and when examined she showed a commencing gangrene involving the R.H. teat and a surrounding patch of skin on the quarter. The pulse was 100 p.m. and temperature 107° F. The secretion from the teat was apparently normal and the proximal part of the gland was soft and normal in size. Microscopical

examination of the milk showed no abnormality and none was sent for culture.

Treatment.—300,000 units penicillin were injected into the inflammatory oedema around the base of the teat and above the line of demarcation, three separate points being chosen. This treatment was repeated on the 6th and again on the 7th. On the latter visit the temperature had dropped to 101·5° F. and the patient was eating well. She calved and cleansed on the 9th and milked well, part of the gland sloughing in a month's time.

W. K.—Ayrshire heifer, 12 hours calved. On 16/5/47 this heifer was showing an acute gangrenous mastitis affecting the O.F. and O.H. quarters. The pulse was rapid and weak, temperature 104° F. The external manifestation of the gangrene involved both teats, the intervening skin and a corresponding area of both quarters. She had calved and cleansed unassisted but was not eating. The secretion from the teats was thin, blood-tinged fluid which showed numerous staphylococci on microscopical examination.

Treatment.—400,000 units penicillin, in all, were injected into the parenchyma of the affected quarters, eight points above the line of demarcation, each receiving 50,000 units in 5 c.c. water. This treatment was repeated on the 17th, when the heifer was still showing severe toxaemia although the area of discoloured skin had not increased. On the 18th there was a distinct improvement in general health with a stronger slower pulse and her temperature was down to 102° F. 200,000 units penicillin were injected at two points into each quarter. Subsequent improvement in health was rapid; the quarters sloughed three weeks later and she was fattened off.

T. H.—Ayrshire cow, six hours calved. First seen on 6/8/49. This cow showed a gangrenous mastitis of the R.F. quarter; the teat was cold and blue and a patch of discoloration extended over part of the skin of the quarter. The whole quarter was greatly swollen and "doughy," the secretion from the teat was sanguineous and gassy. She refused all food, and both hind legs showed a diffuse oedema; temperature 103° F., pulse 120 p.m. Microscopical examination of the secretion showed numerous staphylococci.

Treatment.—200,000 units penicillin in 10 c.c. water were injected deeply into the parenchyma at each of three places above the line of demarcation of healthy and gangrenous skin.

On 7/8/49 the cow's general condition was unimproved, the hind legs being very much more swollen while the gland was still bigger, but the external indications showed no progress of the gangrene. 600,000 units of penicillin were again injected into the depth of the quarter.

On 8/8/49 the sickness was decreasing rapidly. The treatment was repeated, and although the other three quarters contained practically no milk, advice was given to continue milking them.

The quarter sloughed on 30/8/49 and by this time the cow was giving 3 gallons of milk.

M. R.—Ayrshire cow, four hours calved. On the evening of 15/8/48 this was reported as a suspected case of milk fever. Examination showed her to be extremely toxic, with weak, frequent pulse; temperature 103° F. The whole udder was greatly congested and oedematous. The L.F. and L.H. quarters were showing gangrene of the teats and a small area of skin. The secretion from these teats was of a bright orange yellow colour and microscopically showed numerous staphylococci. The prognosis was held to be hopeless but as a last resort 800,000 units of penicillin were injected at four places into each gland. A further 200,000 units were given subcutaneously.

To our surprise, the owner 'phoned to say the patient was still alive. When seen she seemed a little brighter although the affected quarters were larger and the gangrenous areas extending. 300,000 units penicillin were injected at six points. No further visits were made to this cow. She was slaughtered as a casualty two weeks later; the carcase was passed, although the slough had not fully separated.

Weekly Wisdom

"Clinging tenaciously to what is vital—the conservation of knowledge, its interpretation, a vigorous and sustained effort to enlarge its boundaries, and the training of those who will carry aloft the torch of learning as generation succeeds generation."—Sir John Anderson (on the functions of a University).

BOOK-KEEPING AND ACCOUNTANCY IN RELATION TO A VETERINARY PRACTICE *

BY

H. W. STEELE-BODGER, M.R.C.V.S.,

Tamworth, Staffs.

It was with much trepidation that I accepted the invitation to speak to you on the subject of Book-keeping and Accountancy in relation to a Veterinary Surgeon's practice, as my experience of clerical work in my own practice is very small and I will frankly admit that I have little knowledge of taxation and the value of goodwill. I have therefore had to have recourse to my own Accountants for information to enable me to talk to you.

In the first place, I will try to tell you how I deal with my own book-keeping and accounts. The original source of most of the items which go to make up a veterinary surgeon's accounts is the diary in which all daily visits are recorded, and in which notes are made as to the necessity or otherwise of repeating such visits, and the despatch of drugs and medicines. This diary enables the veterinary surgeon to keep in constant touch with each individual case, and also forms the basis for the day book in which details of the visits are entered and the charge for the work is recorded. Two columns should be provided, one for cash paid on the spot, and the other for entries which are subsequently transferred to index cards. I find in my own practice that a card-index system is very much more suitable than any other form of ledger, as old accounts can be abstracted and placed in separate boxes, leaving only current accounts in the boxes in daily use. It is, of course, unnecessary for me to tell you that cash transactions save a great deal of clerical labour; the work for which cash is received in the course of the day, including surgery consultations, is totalled in the usual way in the day book. This total is then transferred to the cash book before the day's or week's total is banked along with other receipts.

I urge strongly the importance of writing up the day book at the end of each day when the work is easily recalled and one is able properly to record the price for the visit and the cost of any drugs which may have been used. It is also in my opinion very necessary to render statements to clients, at frequent intervals (monthly if possible) when the veterinary surgeon's visits are fresh in the mind of his client.

The index card is kept on normal double entry principles, the debit side of each client's account being posted from the day book and the credit side from the receipts book. Normally only the date and the fee is transferred from the day book to the client's card, but if for any reason I require fuller details entered on the card, I mark "E.D." in the margin of the day book.

In my own practice I find that an analysed cash book is sufficient for recording expenditure incurred, namely, wages, salaries, drugs, rent, rates, insurance, repairs, motor expenses and other charges which are incurred in running a veterinary surgeon's practice. It is, I am sure, unnecessary for me to emphasise the importance of keeping correct records of expenditure, for, if cash purchases of drugs and expenses are omitted from the cash book, the

* Delivered at the meeting of the Central Veterinary Society held at the Royal Veterinary College, London, April 7th, 1949.

profit and loss account at the end of the year will not be a true one, and taxation will be levied on profits which have not been earned.

I have mentioned only briefly the book-keeping side of a practice as all members will have their own systems and methods which vary according to individual requirements. It is essential that correct and true records are kept of receipts and payments for the practice, apart from private records, as, in these days of high taxation, mistakes can be very costly, and further, in the event of a sale of the practice, correct fees and profits are necessary for the purpose of appraising the value of the goodwill figure which an outgoing practitioner will require.

Before I speak to you on the question of goodwill, I should like to say something about the preparation of the accounts which every practitioner will have to have prepared for submission to his local Inspector of Taxes. The income and expenditure account which should record all transactions of a non-capital nature is prepared from the details recorded day by day, and summarised to show a year's results. The fees which appear on the credit side of the account will present little difficulty as these will be the total of the priced visits from the day book, paid for in cash or dealt with as credit accounts. On the same side as the fees should appear the value of drugs, etc., on hand at the date up to which the account is made. The debit side of the account will commence with the value of drugs, etc., on hand at the date the previous accounts were made up and then the normal expenditure of the practice will follow, namely: cost of drugs purchased during the year under review and the administrative expenses such as wages, rent, rates, insurance, repairs and maintenance, replacements of instruments, stationery, stamps, telephone expenses, motor-car upkeep and sundry expenses incurred. If the practitioner owns the property at which he practises, the net Schedule A value should be substituted for rent. On this side also will appear any bad or doubtful debts which the practitioner is of opinion will prove uncollectable, and any odd discounts which may be deducted when an account is paid. It is particularly important that debts at the end of the veterinary surgeon's year should be thoroughly scrutinised and all bad ones written off, so that the proper allowance is claimed for income tax purposes. The practitioner himself is the best judge of the soundness or otherwise of a debt, and it is well worth while reviewing the list of outstanding debts at frequent intervals, and putting pressure upon debtors whose accounts tend to fall into arrear. However high the rate of taxation, something is left after the Commissioners have taken their share, whereas, if a debt proves irrecoverable, there is no reward for the work incurred. The method of using an analysed cash book may cause difficulty unless the practitioner is careful to see that all liabilities incurred by the end of his financial year, and not discharged, are taken into account. My own accountants keep a private ledger into which all fees are entered and all expenses shown in various detailed accounts. At the end of each year they extract outstanding unpaid bills and charge these to the respective accounts, and these are brought forward as creditor items which are cancelled out when subsequently paid. It will be appreciated that some of these detailed or nominal accounts are charged with accruing expenses, but the object, of course, is to see that, when ruled off, they show correct expenditure incurred for the year.

A large number of veterinary surgeons carry on their practices at their place of residence. If so, the amount of rent, rates and insurance which the Inspector of Taxes will allow as a charge against the takings is limited to two-thirds of the total cost. In these cases some discussion usually will arise as to the correct amount to charge against the practice for wages of servants who act in dual capacity. In the case of a maid who is employed in the house and also attends to callers, I am informed that the Revenue will not object to one half of the cost of wages and keep being charged to the income and expenditure account. If the practice is carried on at a separate establishment no difficulty should be experienced in obtaining the allowance of all expenses incurred in running that establishment.

There are one or two other points of detail. Most veterinary surgeons have cars for use in their practice. The cost of purchase is, of course, capital outlay, but the cost of upkeep is a proper charge against the takings. The Income Tax Inspector will also allow amounts from the adjusted profit for initial allowance and for depreciation or wear and tear. These are considerable items in view of the high cost of motor vehicles to-day. The initial allowance is 20 per cent. of the cost and the rate of wear and tear given is expressed in a curious way, namely, five fourths of 20 per cent. on the reducing value. It will not take you long to work that out; five fourths of 20 per cent. is 25 per cent. so that, as an example, assuming you purchase a car for your practice at a cost of £1,000, you will get on the next income tax year following the end of your financial year, an allowance of £450 from your adjusted profits. If you retain the car for another year you you will have an allowance of 25 per cent. of £550, namely, £137 10s., and so on until the car is disposed of. If you sell the car at less than the then written down value, you will get what is called a balancing allowance, that is the difference between the written down value and the sale price, and you will again get 20 per cent. initial allowance and 25 per cent. depreciation on the cost of the new vehicle. If you sell your car for more than the written down value you will have to refund to the Revenue, income tax on the difference between the sale price and the written down value. This is called a balancing charge and is restricted to the total allowances you have received. Some veterinary surgeons will use cars exclusively for their practice. In that case no difficulty will arise. In other cases cars will be used privately as well as for business. Then it is a matter of negotiation with the Inspector as to the amount to be added back for private use. In my own case I use cars so frequently for business that private use is negligible, and my accountants agree a small nominal sum to be added back for that purpose. In my own practice I have established a value for instruments and I have always claimed the renewal basis. This is the best method of dealing with that type of asset as, whatever the cost, the replacement is always allowed as a charge for taxation purposes. I should, of course, point out that additional instruments are not a proper charge against receipts, but should be capitalised and included in the assets in the balance sheet.

The balance sheet of a veterinary surgeon should be quite a simple one. The assets will comprise debtor items which are deemed to be good, cash, instruments as valued, stock of drugs, and any fixed assets such as property. The liabilities side will show all outstanding creditors and accrued charges at the date of the balance sheet and also the veterinary surgeon's capital in the business. This will be ascertained by commencing with the opening capital, adding the profit for the year and deducting amounts taken from the business which are not fit and proper expenditure

to charge against takings. You will, of course, know that you cannot charge a salary for yourself before arriving at your profit. If you do, it will be added to the profit by the Inspector to arrive at your assessable income. If your wife assists you in the business she can draw at least £110 per annum without incurring any tax liability. This may be more, but the amount depends on the earned income relief which you get from your earnings. The Inspector will probably require to know that the remuneration to her is regularly paid and may ask if, as an employed person, she is properly insured.

Your accounts can be made up to any date you wish. They form the basis of assessment for the subsequent income tax year. For example, if you made up your accounts for a year to September 30th, 1948, the adjusted profits would be your assessment for the income tax year 1949-50. It is unwise to change your accounting date unless you obtain expert professional advice, as you place yourself in the hands of the Commissioners, who decide which periods to take for assessment purposes if a change in date is made.

When your profits are agreed you are entitled to various allowances. All earned incomes are reduced by one-fifth with a maximum relief of £400 and if you are a single man you get a further allowance of £110, or if married £180. If you have any children under 16 you get an allowance of £60 for each child and you also get the allowance for any child over 16 who is being educated at a recognised educational establishment. After these allowances the first £50 is taxed at 3s., the next £200 at 6s. and the balance at 9s. If you and your wife are fortunate enough to have over £2,000 before deducting these allowances, the Special Commissioners ask you to pay surtax at graduating rates according to the amount of your total income over £2,000. You will observe from the above—and it is a sad commentary on British tax law—if two persons have incomes of their own, it is far cheaper to 'live in sin' than to marry!

I now come to the final point of my talk, that is the value of the goodwill of a veterinary surgeon's practice. Much has been said and many papers and books written on how to value goodwill. The problem confuses the expert, so how can I be expected to explain to you how to arrive at a figure for goodwill? I am informed by my advisers that there are quite a number of ways of working this out, and there are many factors to take into account in deciding the value of a business. For many years the goodwill of a professional practice was usually based on so many years' purchase of the gross fees, but there is nothing scientific in this method. In most cases the figure adopted has been a compromise after negotiation between the advisors of the vendor and the purchaser, and whatever method is used I am inclined to think that an agreed figure will always have to be negotiated. When I asked my accountants to value the goodwill of my own practice they produced a large number of calculations which, in effect, showed me the amount of super-profits I was making. To arrive at these super-profits they worked out what they considered to be a fair and commercial return on the capital employed and then calculated what average profits I had made over the last three years after deducting all expenses and an amount for remuneration to which I was entitled for my services. The difference between the average net profit and the fair and commercial return on the capital employed was the figure of super-profit to which I have referred above. I was then told that if I wished to sell my practice I might get, in addition to the value of any tangible assets I wished to dispose of, an amount for goodwill based on three to five years' purchase of the super-profits, the final amount depending, as I said before, upon negotiation with the proposed purchaser or his advisors. It is clear, therefore, from what I am told, that the goodwill figure of a veterinary surgeon's practice is one which eventually has to be settled amicably between a willing seller and a willing buyer. Any computation based on past figures must of necessity be a guide only to a prospective purchaser, who will doubtless consider locality, efficiency, personal and established goodwill in deciding what he is prepared to pay for a practice.

I hope my few remarks have been interesting and instructive to you and if any member of my audience would like to ask questions, my auditors and/or my secretary will be pleased to try to answer them.

Discussion

Mr. Steele-Bodger's paper was followed by a wide and lively discussion during which Mr. J. A. Beard, F.C.A., of the firm of Messrs. Herbert Smith and Russell, accountants to Mr. Steele-Bodger, and Mr. G. P. Clarke, F.C.A., answered questions as they were raised.

Mr. L. Geffen described his methods of book-keeping in a single-handed practice using a card index. He asked the advice of members on the ethics of charging for telephone calls. Pointing out that allowances against income tax were made for kennelmaids' and book-keepers' salaries, he also stressed that if a man's wife was in any way employed in the practice and paid a salary that could be claimed. He queried the amount commonly allowed for running a practice from the dwelling house and the proportion of car expenses put down for private use. He emphasised the wisdom of employing accountants to make up the yearly balance sheet.

Major T. L. Wright re-emphasised the value of daily pricing and booking and asked whether wear and tear on cars was allowed as a charge against income tax in the same way as for machinery and plant.

Mr. Clarke drew attention to the considerable saving in income tax if one's wife was employed in the practice but pointed out that the Inspector of Taxes would have to be satisfied that the income paid her was both paid and earned. Her duties, *e.g.*, book-keeping, receptionist-telephonist, should always be specified. Where the dwelling house was used for the business the usual allowance was two thirds, but circumstances might vary and it was not hard and fast. Telephone, car and part of the rates and taxes could claim apart from many incidental expenses; *apropos* of which it was wise to write up the petty cash as frequently as possible. There was no reason why car wear and tear should not be claimed. The recent budget increased the initial allowance to 40 per cent. on cars bought for use in the practice. In the first year, therefore, the claim was 40 per cent. plus 25 per cent. wear and tear, or 65 per cent. of the cost. If later the car was sold at a price higher than its income tax value then tax would be paid on profit over and above the tax value.

Mr. Mitchell asked if the figure 7½d. per mile allowed by the Ministry of Agriculture as car running expenses could be taken for income tax purposes.

Mr. Clarke replied that in practice it was safer to put in the actual expenditure on petrol oil, repairs, etc., and claim that as the allowance.

Mr. Barrett quoted some of the disadvantages of a card index system and suggested that a permanent index should be kept to avoid loss of cards without record. He thought it was common practice to render small-animal accounts monthly and farm accounts quarterly and found it an advantage in large accounts to quote the details, to avoid query. He considered telephone consultations should be charged to those people who were obviously angling for free advice but not in case of genuine query regarding the nursing of a case already under treatment.

Mr. True asked for guidance on pricing and quoted widely differing rates for the same work.

Professor McCunn described the systems used by some older practitioners he had known. He had been told that to buy a car on hire purchase gave some advantage in income tax and wished to ask how it did so. He said that fees were bound to vary according to the pocket of the client and could not be laid down.

Mr. Beard said that a car purchased outright was an actual asset. Hire purchase was no help for income tax purposes but only eased matters by not drawing a lump sum out of the bank.

CLINICAL COMMUNICATION

MULLERIAN DUCT REMNANTS IN THE BULL

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Introduction

Whilst making routine *post-mortem* examinations of bulls condemned as infertile, the opportunity was taken of noting the presence or absence of remnants of the Mullerian duct.

These remnants are frequently found in the male bovine in Great Britain, as in other countries, although agreement as to frequency is confused. Thus, Effenburger and Baum (1943) state that they are frequently found, and quote Skoda (1917) who found them in 82 of 115 bulls examined. Sisson (1947), on the other hand, states such remnants are ordinarily absent. Swoboda (1929) found them in 50 per cent. of the material he examined, and in more recent times, Blom and Christianson (1947) found them *often* among 2,000 bulls and described a tubular structure in continuity with the urogenital canal.

Post-mortem Findings

Ten bulls have been examined in detail at the time of slaughter, and remnants of the Mullerian ducts were present in four.

These rudiments were found in two distinct forms, three of the four cases being of one type, and one of the other; the former type consists of a single firm vesicle about 4 mm. in diameter situated in the anterior part of the *plica urogenitalis*. The latter type was represented by a tubular structure situated in close apposition to the right ampulla of the *vas deferens* of Case ABR 34, on its dorso medial aspect. All these rudiments were filled with a clear gelatinous material.

Microscopical Examination

Histological examination showed a central lumen lined with ciliated columnar epithelium; much folding was present, and smaller accessory lumina surrounded the central portion. These latter were round or oval and measured 70 × 124μ to 116 × 116μ (Fig. 1); the lining epithelium measured from 9 to 14μ in height, the nuclei being round or oval and measuring 7·7 × 6·8μ (Fig. 2). The wall consisted of three layers, a connective tissue submucous layer measuring 235 to 274μ, muscular layer consisting of several smooth muscle bands measuring 230 to as much as 934μ and this in turn was surrounded by a connective tissue layer measuring 720μ.

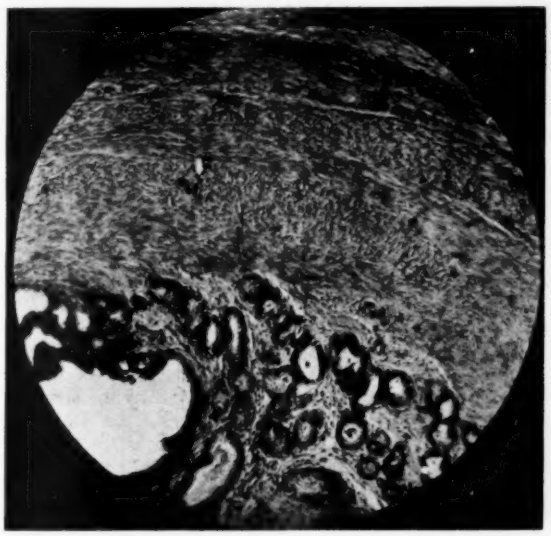

Fig. 1
General View of Structure × 250.

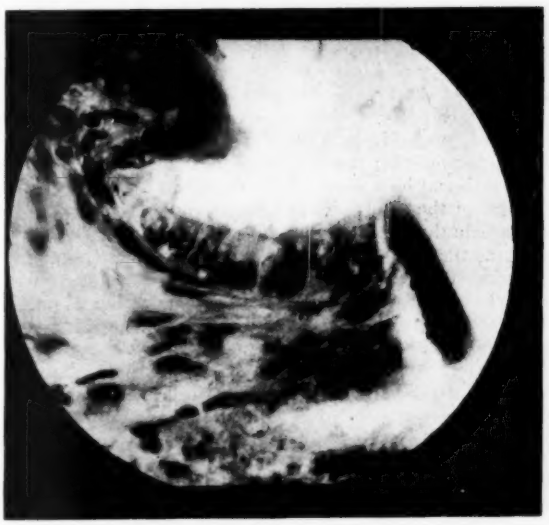

Fig. 2
Lining Epithelium × 500.

Discussion

While these rudiments are of small size, it is possible occasionally to palpate them per rectum, but unless the bull's organs are examined *in situ* at the time of slaughter, these structures can easily escape detection, since the *plica urogenitalis* is quickly destroyed on the removal of the various pelvic organs.

If these remnants have any significance, it is likely to be associated with the hereditary make-up of the bull, for there is no proof that they do in themselves influence semen production. If, however, inherited forms of sterility in bulls are associated with a "feminine" type of animal, these remnants may be of significance. The question may then arise, are these remnants more common in infertile or sterile bulls than in those showing good fertility?

(*Concluded at foot of next column*)

Simple hire could of course be charged against expenses but was a costly method of transport.

Several members emphasised the value of employing a secretary and keeping the system as simple as possible and the concensus of opinion seemed to be that single-handed practice, or with one assistant, was the most economical.

The Reply

Mr. Steele-Bodger, in reply, said that he felt small staffs were more economical and certainly when it came to selling a practice a huge gross turnover was not a great asset at the present time when nobody had the capital for purchase. He too had difficulty in deciding what to charge for telephone calls and felt that it was an individual matter. It is possible to arrange with the G.P.O. for details of all charges over 50 to be furnished with the telephone account, and this enables practitioners to recoup themselves, at least for the cost of telephone consultations. Charges were very difficult to make hard and fast. He quoted some accounts of a president, R.C.V.S., of 100 years ago, found in an old desk. They showed charges of 5s. for visits where now he would charge 10s. and Mr. Steele-Bodger pointed out that expenses and cost of living had increased far faster than had the fees.

ANNOTATION

OBSERVATION OF THE VIRUS OF FOOT-AND-MOUTH DISEASE BY THE ELECTRON MICROSCOPE

Reports have appeared in the daily Press that the virus of foot-and-mouth disease had been seen for the first time by examination of preparations under an electron microscope. The short article "Observation du Virus de la Fièvre Aphteuse au Microscope Electronique" (Observation of the virus of foot-and-mouth disease by the electron microscope) by Girard, H., Hirtz, J., Mackowiak, C., & Loirin, M. (1949.) —*C.R. Acad. Sci.* **229.** 1272—in a scientific journal presumably deals with available information on which the Press notice was based and it is perhaps as well to correct the impression which may have been conveyed by the statements in the Press.

Ardenne, von & Pyl (1940) (*Naturwissenschaften.* **28.** 532)—the former, one of the early developers of the electron microscope—reported that they had found particles which were believed to be the virus of foot-and-mouth disease in infective defibrinated diluted vesicle lymph which had been centrifuged at 15,000 revs. per min. These particles were estimated to be about 20 to 30 mμ in size by comparison with collodial gold particles. Similar particles were not found in their control fluid which consisted of lymph from vesicles or blisters produced by burns. The French investigators from the Laboratory of Electronic Optical Dept. of the University of Lyon and the French Institute for the Study of Foot-and-Mouth Disease, Lyon, refer to von Ardenne and Pyl's observations and, probably influenced by the bad reproductions of the photographs in the 1940 article, comment that in their opinion the authors were a little daring in deducing the form and size of the virus. They state in the conclusions to their own article that from their observations it would be logical to conclude that the spherical elements or particles (photographs reproduced) which they demonstrated only in fluids containing the virus of foot-and-mouth disease, are indeed virus particles. It is worthy of comment that their estimated size value of these is the same as that given by the German workers referred to above, *viz.*, 20 to 30 mμ. Girard, Hirtz and collaborators examined virus of bovine origin of the Vallée O type which they state was suspended in a "buffered solution at pH 7·4" which had been centrifuged "for a long time," filtered through a Seitz filter and which had a titre of 10^{-8}, but it is not stated whether this titre figure is based on a calculation of a 50 per cent. end-point. The spherical particles were not demonstrated in their "control medium." They examined also the allantoic fluid from the second passage in developing hen eggs, of virus of bovine origin. According to the authors this was "virulent for cattle" and they found "masses of spherules very similar to those in the vesicle fluid," whereas such spherules were not found in control passage allantoic fluid not inoculated with virus. These observations and those of von Ardenne & Pyl are in agreement that particles which have an estimated size of 20 to 30 mμ can be found in infective vesicle fluid from foot-and-mouth disease lesions which has been either centrifuged at 15,000 revs. per min., or filtered through a Seitz filter. Both groups of workers believe that these particles may be virus particles. It would be difficult to say much about the photographs in either paper as the reproduction may not do full justice to the originals. It is obvious that this type of work, as regards the virus of foot-and-mouth disease, is still in its early embryonic stages, and it is hoped that the start that has been made will lead to development of improved methods of approach to the problem.

It must be borne in mind that in dealing with the mammalian viruses the nature of the material to be examined is of primordial significance. It consists of infective tissues and extracts which contain not only the virus or infective agent but much disintegrated tissue in all states of dispersion and it is necessary to fractionate the system, making use of filtration and centrifugation, supplemented when necessary by adsorption methods, and correlating the frequency of particles with control infectivity tests at every stage. Purification of the virus is an important procedure. All of the work done so far to demonstrate the virus visually, by surcoloration with osmic acid, by obtaining fluorescent light images, by controlled staining with a fluorescent dye such as primulin or auramine or by obtaining ultraviolet light photographs by the transmitted light or dark ground methods, or indeed by the use of the electron microscope, would appear to be open to criticism owing to the lack of adequate consideration of such points as those just mentioned.

It is perhaps worthy of note that examination of virus suspensions by fractional filtration and ultracentrifugation has indicated monodispersity of the virus, and size values of 8 to 12 mμ and 17 to 20 mμ have been estimated by the respective methods. The possibility of there being infective virus units larger than an average range by such estimates of about 10 to 20 mμ has been definitely excluded. It would not be appropriate here, however, to discuss fully all the factors which have to be considered in arriving at these estimates of size value. It should also be stressed that as the examination of material under the electron microscope takes place *in vacuo* it has to be dried, and the effect of this on the agent examined is problematical.

I. A. G.

Summary

The occurrence of remnants of the Mullerian ducts in the bull is described and discussed.

Acknowledgments.—The writer is indebted to Dr. N. S. Barron for his interest and help in this work, to Mr. L. C. Willis for the micro-photographs, and Mr. F. A. Keep and Miss E. J. Shoesmith for technical assistance.

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Intensification of Measures Against Human Tuberculosis Infection in Northern Ireland.—It is estimated that the Northern Ireland Tuberculosis Authority will spend the greatly increased sum of almost £650,000 in the financial year commencing March 31st. The increased expenditure is attributable to, amongst other things, the following factors: expansion of the B.C.G. vaccination service; increased bed accommodation in the existing hospitals and the proposed opening of a new hospital; the increased use of expensive drugs in the treatment of tuberculosis; the introduction of a home-help scheme for tuberculosis sufferers; the commissioning of a new mass radiography unit; the expansion of welfare schemes. An interesting feature is that a tuberculin testing survey and a community survey will be carried out to aid the Authority in its drive against this scourge. Concrete evidence of the success which is already attending the Authority's efforts is provided by the fact that the death-rate among sufferers has decreased to a considerable extent. The 1948 figure of 69 deaths per 100,000 of the population from all forms of tuberculosis was the lowest on record. It compares with 92 in 1938, and 140 in 1928.—*Ulster Commentary.*

N.V.M.A. CONGRESS AT CARDIFF

Hotel Accommodation

We are advised that hotel accommodation available in Cardiff at the time of the N.V.M.A. Congress (September 3rd to 8th inclusive) is limited.

Members are urged, therefore, to book their rooms as early as possible, and to facilitate this we reproduce below particulars of such block reservations as the Provisional Committee has been able to make. They are asked to note specially :—

1. That these particular reservations are contingent on applications being received from members at least two months prior to the opening of the Congress ;
2. That applications should be made direct to the hotel concerned and *not* to the Local Secretary ; and
3. That, in making application, members should mention the fact that they are veterinary surgeons attending the Congress.

	Block Reservations			(*All nett charges*)		
	Single Rooms	*Twin-Bedded Rooms*	*Double-Bed Rooms*	*Bed and Breakfast (Single)*	*Bed and Breakfast (Double)*	*Board Per Day*
Angel Hotel, Westgate Street, Cardiff... ...	10	6	5	19/6	39/–	30/6
Alexandra Hotel, Queen Street, Cardiff ...	—	4	2	14/6	29/–	23/–
Queen's Hotel, St. Mary Street, Cardiff ...	2	11	8	16/6	33/–	24/6
Barry's Hotel, St. Mary Street, Cardiff ...	10	5	10	16/6	32/–	25/–
Sandringham Hotel, St. Mary Street, Cardiff...	12	6	3	15/–	30/–	23/–
Park Hotel, Park Place, Cardiff (Headquarters Hotel)	30	16	12	16/6	33/–	25/6
Marine Hotel, Barry Island	—	2	2	14/6	29/–	21/–
Barry Hotel, Barry	3	3	3	14/6	29/–	24/-
Esplanade Hotel, Penarth	6	6	6	15/6	31/–	25/6
	73	59	51			

ADDITIONAL HOTELS WITHOUT RESERVATIONS

We have also been furnished with the following list of additional hotels to which applications for accommodation also can be made. Here, again, the necessity for early application is stressed.

Railway Station Hotel, Station Approach, Cardiff.

Philharmonic Hotel, St. Mary Street, Cardiff.

Gwalia Hotel, Barry.

Ship Hotel, Barry.

Seafield Hotel, 14, The Parade, Barry.

PRIVATE HOTELS

" Cedars," Fidlas Road, Cardiff.
" Ashburton," 227, Newport Road, Cardiff.
Mrs. Kennett, 60, Park Place, Cardiff.
Mrs. Cleves, 8, Tydraw Road, Cardiff.
Hamilton Guest House, 82, Penylan Road, Cardiff.
Mrs. Hesbronder, 233, Allensbank Road, Cardiff.
St. David's Hotel, 103, Newport Road, Cardiff.
Mrs. Woodward, 193, Newport Road, Cardiff.
Mr. Begg, 36, Hamilton Street, Cardiff.
Mrs. Springett, 26, Column Road, Cardiff.
Lyndon Court Hotel, 191, Newport Road, Cardiff.

VETERINARY SURGEONS ACT, 1948

Supplementary Veterinary Register

The Council of the Royal College of Veterinary Surgeons have directed the Registrar under the above Act to register in the Supplementary Veterinary Register the names of the persons set out below.

The absence of the name of any person who has made application in prescribed form before the prescribed date does not imply that such applicant has been refused registration.

The date of registration is as shown against the name of the person concerned.

BARTLETT, Corbett John Manfield, Westbury, Derby Road, Wirksworth, Derbyshire, as from January 25th, 1950.

BREEN, Reginald Charles, 353, Grange Road, Upper Norwood, S.E.19, as from January 14th, 1950.

MARKING, Robert Arthur, 2, Morocco Street, London, S.E.1, as from January 3rd, 1950.

MURCH, Charles Thomas, Hazelcroft, Church Road, Plymstock, Devon, as from January 16th, 1950.

MURGATROYD, Hiram Murray, 183, Abbeydale Road South, Beauchief, Sheffield, as from January 25th, 1950.

NOTES AND NEWS

Diary of Events

Mar. 1st.—Annual Meeting of the Lancashire Division, N.V.M.A. at the Veterinary Hospital, Pembroke Gardens, Liverpool, 2.30 p.m.

Mar. 1st.—Meeting of the Southern Counties Division, N.V.M.A., at Winchester (the Norman Meade), 6 p.m.

Mar. 2nd.—Meeting of the Central Division, N.V.M.A., at the Royal Veterinary College, N.W.1, 2 p.m.

Mar. 2nd.—Meeting of the Ayrshire Division, N.V.M.A., at Ayr (Hotel Dalblair), 2.30 p.m.

Mar. 3rd.—Meeting of the South Wales Division, N.V.M.A., at Carmarthen (Dolwar Café), 2 p.m.

Mar. 3rd.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Peterborough (The Grand Hotel), 2.15 p.m.

Mar. 3rd.—Annual Meeting and Dinner of the BRX Club, at the Royal Veterinary College, London, 6 p.m.

Mar. 3rd.—Meeting of the Sussex Division, N.V.M.A., at Brighton (Old Ship Hotel), 2.30 p.m.

Mar. 8th.—Meeting of the Editorial Committee, N.V.M.A., 3 p.m.; meeting of the Editorial Executive Committee, 1.30 p.m.

Mar. 8th.—Meeting of the Society of Women Veterinary Surgeons at Liverpool (The Veterinary Hospital, Pembroke Gardens), 6 p.m.

Mar. 9th.—Annual Meeting of the South Eastern Division, N.V.M.A., at Maidstone (Royal Star Hotel), 2.30 p.m.

Mar. 14th.—Meeting of the East Midlands Division, N.V.M.A., at Sutton Bonington, 2 p.m.

Mar. 22nd.—Meeting of the Technical Development Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 10.30 a.m.

N.V.M.A. Council and Committees

The next Council and Committee Meetings of the Association will be held at the Royal (Dick) Veterinary College, Edinburgh, on April 26th, 27th and 28th.

The time-table is as follows:—

WEDNESDAY, APRIL 26TH.

11 *a.m.* Veterinary State Medicine Committee.

2.30 *p.m.* Organising Committee.

THURSDAY, APRIL 27TH.

10 *a.m.* Home Appointments Committee.

11.30 *a.m.* Parliamentary and Public Relations Committee.

2 *p.m.* General Purposes and Finance Committee.

FRIDAY, APRIL 28TH

11 *a.m.* Council Meeting.

Collection of Accurate Data on the Incidence of Disease

This project has been received with some enthusiasm by those who have volunteered to help and it appears that many farmers have shown great interest and are very willing to co-operate. Only about 50 veterinary surgeons, however, are so far putting the project into practice and very many more volunteers are required. Any member, therefore, who would like more particulars is asked to write to the General Secretary, N.V.M.A., 36, Gordon Square, London, W.C.1.

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"Veterinary Surgeon" on Motor-cars

Enquiries have been received by the Royal College of Veterinary Surgeons as to whether it is permissible for a veterinary surgeon or a person registered on the Supplementary Veterinary Register to use the title "Veterinary Surgeon" or "Veterinary Practitioner" on the windscreen of a motor-car.

The position is that for a certain period this was permitted, but the Council of the Royal College of Veterinary Surgeons has laid down that the use of such titles on the windscreen or anywhere else on a motor-car is now no longer necessary, and must not be used as they are of the essence of advertising.

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PERSONAL

R.C.V.S. Fellowship Awards.—In our issue of January 28th we recorded the conferment of the Fellowship of the Royal College of Veterinary Surgeons upon Mr. S. J. Edwards and Mr. G. C. Knight. We regret the late notification of the following additional awards of the Fellowship Diploma: April 7th, 1949: Upon Mr. Alan Edward Pierce, M.R.C.V.S., D.V.S.M., of the Ministry of Agriculture Veterinary Laboratory, Weybridge—(Thesis: "Some aspects of the diagnosis of bovine trichomoniasis"): September 29th, 1949: Upon Mr. George Bryan Stephens Heath, B.SC. (EDIN.), M.R.C.V.S., also of the Ministry's Veterinary Laboratory—(Thesis: "Control of the sheep tick *Ixodes ricinus* L.), and Mr. Nicholas Robert Turnbull, M.R.C.V.S., of Basingstoke, Hants—(Thesis: "The open reduction and internal fixation of certain fractures of the long bones in dogs and cats."

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Appointments in the Colonial Service.—The Colonial Office announces the transference of Mr. J. C. RIX, T.D., M.R.C.V.S., Veterinary Officer, from Northern Rhodesia to Hong Kong; also the first appointments of Messrs. T. J. Coyle, M.R.C.V.S., as Veterinary Officer, Uganda, and G. R. Scott, B.SC. (EDIN.), M.R.C.V.S.., as Veterinary Research Officer, Kenya.

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Births.—ALLEN.—On February 7th, 1950, at "White Cottage," Colvton, Devon, to Pamela Margaret, wife of G. S. Allen, M.R.C.V.S., a daughter—Jane Margaret.

BOWNASS.—At Melling Nursing Home, via Carnforth, on February 9th, 1950, to Jean (*née* Millar), wife of Robert C. Bownass, B.SC., M.R.C.V.S.—a son.

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Marriage.—HOPKIN—BOLEY.—The marriage took place on February 14th, 1950, at St. Margaret's Church, Roath, Cardiff, between Alun, youngest son of Mr. and the late Mrs. E. Hopkin, Bonvilston, and Beryl, youngest daughter of Mr. and Mrs. A. G. Boley, Cardiff.

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R.C.V.S. OBITUARY

WILLIAMS, William Morgan, 61, Cathedral Road, Cardiff. Graduated London, July 15th, 1898. Died February 13th, 1950: aged 83 years.

WADLOW, Clement Hamlyn, M.C., Capt. S.A.V.C., of Church Street, Wynberg, Cape Province, South Africa. Graduated N. Edinburgh, May 21st, 1903. Died July, 1949 (exact date not known).

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GENERAL OBITUARY

Mr. James Austin, O.B.E., LL.B.

It is with deep regret that we record that Mr. James Austin, O.B.E., LL.B., late Secretary of the Glasgow Veterinary College and Clerk of the Peace, died suddenly in Glasgow on February 9th, 1950.

An Appreciation

Mr. Austin's name is a household one to Glasgow Veterinary graduates because he held the important post of Secretary from early 1920 until 1949. He joined the college in the early twenties when the ex-Service men from the 1914-1918 War were undergraduates and the college was a very live institution. He finally contributed largely to the smooth changeover of the college to the University in 1949. Only those associated with him most closely will ever know the important part he played during the dark days from 1924 to 1945, when the college struggled for existence without any State support. Principal Whitehouse knew his worth in administration and freely acknowledged the help he received from him.

Mr. Austin's reaction to the winding-up of the Glasgow Veterinary College was characteristic. If it were to be for the benefit of veterinary education, then he wholeheartedly supported the change and subjugated his own personal interest and if it had to be handed over, everything must be in good order. It is unnecessary to add that a very orderly unit was transferred, as those in charge of University administration freely acknowledge. He held firmly to the view that the changeover was merely a transition and he was satisfied that the work of those who struggled to keep a centre of veterinary education had not been in vain and that a useful school of veterinary medicine would develop in Glasgow University.

Mr. Austin had many interests in the City of Glasgow, legal, business and political, and in each of these spheres he occupied at some time prominent positions. He will be most missed because of his talent for friendship. Students and members of staff never failed to receive good advice when he was consulted and his wise counsel was always appreciated.

He is survived by his wife and one daughter.

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REPRODUCTIVE BEHAVIOUR

Reproductive behaviour in cattle was the subject of the winter meeting of the British Society of Animal Production held in conjunction with the Association for the Study of Animal Behaviour. Before a crowded meeting presided over by Professor T. Dalling and which also included many specially invited members of the veterinary profession and of the Production Division of the Milk Marketing Board, papers were read by Dr. Arthur Walton, of Cambridge, Mr. Geoffrey Smith, of the A.I. Centre at Beccles, Suffolk, and Dr. J. A. Laing, of Bristol University.

In its report of the proceedings *The Farmer & Stock-breeder* states that Dr. Walton dealt with "The Architecture of Male Sex Behaviour," and described what he called the copulatory pattern as something different from the ejaculation pattern. In the bull the first was composed successively of exploring, mounting, pelvic oscillation and intromission. Each of these stages was reached successively after the previous one. In animals with high sex drive all stages were gone through with and they culminated in the orgasm. But in animals of low sex drive only some of the stages might be reached without the proper culmination.

Again, males of any given sex drive would show different reactions to stimuli of different degrees. Rabbits, for instance, would normally always mount and serve a doe in season. A dummy, covered with rabbit fur would often, but not always, be mounted. Animate and inanimate dummies would produce correspondingly smaller reactions. Using a simple diagram he showed that a male of low sex drive might yet do through all stages of the pattern with a female on heat, but would only reach some of the earlier stages with dummies where the stimulation was less, though where the sex drive was high the final stage would still be reached.

Copulation could be facilitated by care, sympathetic treatment and freedom from injury and frustration. It could be inhibited by painful collection, and by irritation and fear caused by strange surroundings. Inhibition might be overcome almost immediately the cause was removed, but in many cases it remained for some considerable time. In such cases it was better to give the animal a complete rest from service or collection, and then to try again when the conditions were good.

An experienced bull where efficient service had become facilitated by successful experience went through the copulatory pattern so speedily that some of the stages could hardly be seen. On the other hand, where inhibition was taking place the pattern slowed down and might eventually cease stage by stage till the bull did not even mount.

Professor W. C. Miller, opening the discussion, referred to the stimulus in the wild state of rage, anger and fighting which would produce the release of adrenalin in the system of the male and this might well facilitate copulation. Where bulls were run in bull herds in Jamaica there was little fighting at first, but this increased later and the animals then seemed better able to serve effectively. To show, however, that fighting did not always act in the same way, he instanced the stallion Call Boy which was so vigorous that he often knocked his mares, and sometimes the grooms, over, yet he got few foals. Hyperion, on the other hand, was the quietest and steadiest of servers, always did his work well and left a very high proportion of foals.

An important point emphasised by Mr. Smith in his paper on the behaviour of bulls at an artificial insemination centre was that out of 400 bulls at M.M.B. Centres only about 10 per cent. were abnormal from the A.I. point of view. Of these, 31 had been slaughtered and nine sent back to their owners. Altogether nine were unsatisfactory because of being savage, or of damage to the penis or of losing interest.

Dr. Laing dealt with oestrus behaviour and ovulation in the cow, and gave figures showing the extent to which heifers and cows were observed to show the signs of oestrus at irregular periods. Still heats were those in which ovulation took place, but there was no sign of heat and so service was missed. False heats occurred when the animal showed signs of oestrus but either would not take the bull or did not ovulate.

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HERDS CLEAN-UP "TOO LONG DELAYED"

In his annual report to Brierley Hill Urban District Council, Mr. D. J. Anthony, the chief veterinary officer, states that there was a decrease in the number of cattle and sheep slaughtered as compared with the previous year, but a welcome increase in the number of pigs sent for slaughter, and there is some hope of reaching the pre-war figures in the near future provided the supply of pig food is maintained.

Cattle slaughtered had a very high incidence of mastitis; also of "fluke" disease, as many as 30 per cent. having infested livers. The large percentage of old cows killed for the Ministry of Food had resulted in an increase of tuberculosis to 27 per cent. of the cattle. In normal times many of the cows would not be allowed to enter the factory for slaughter, but would be rejected out-of-hand by *ante-mortem* inspection as fit only for the knackery.

It was to be hoped, says the report, that the long-delayed cleaning-up of English dairy herds would be carried out soon. It had already been delayed far too long from the public health aspect as well as that of agricultural economics. These emaciated and disease-ridden animals are consuming valuable food which should be used to fatten healthy stock.

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CATTLE EXPORTS TO SCOTLAND: U.F.A.W. SURVEY OF ULSTER AND EIRE SYSTEMS

A survey on the importation of Irish cattle into Scotland, prepared at the University of Glasgow Veterinary School, has been issued by the Universities' Federation for Animal Welfare.

The report deals with grading and purchasing centres, port examination at Belfast and Londonderry, Ulster and Eire markets, transport and embarkation of cattle.

Provision in all Eire and Ulster markets of cattle pens similar to those erected in England and Scotland is suggested. Other recommendations include improved ventilation in the holds of cattle ships and provision of abattoir facilities for dockside casualties in all ports concerned with the shipment of cattle.

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BULL LICENSING IN SCOTLAND: NEW REGULATIONS

The Department of Agriculture for Scotland announces that new bull licensing regulations have been made by the Secretary of State for Scotland. The regulations, which come into operation on June 1st, have been made with the object of improving the standard of bulls. The principal change will be the issue of five types of licence instead of one. The department states that the regulations were made after consultation with agricultural interests. They will be reviewed in two years.

The five types of licences to be issued are:—

A beef bull licence (A)—for a pedigree beef bull registered or eligible for registration in the herd book of a beef-cattle breeding society as approved for purposes of bull licensing.

A beef bull licence (B)—for a beef bull not eligible for an (A) licence but which conforms to the standard laid down for pedigree bulls of that type of an approved beef-cattle breeding society or association. This type of licence will cease after May 31, 1952.

A dairy bull licence (A)—for a pedigree dairy bull registered or eligible for registration in the herd book of an approved dairy cattle breeding society, whose ancestors (dam and dam of bull's sire) have attained prescribed standards of milk yields and

butter-fat content in two lactation periods of 305 consecutive days.

A dairy bull licence (B)—for a dairy bull not eligible for an (A) licence but which conforms to the standard laid down for pedigree bulls of that type. A dairy bull licence (A) may be substituted for a (B) licence if and when the prescribed standards of milk yields and butter-fat content have been reached.

A bull licence (C)—for a bull not eligible for any of the foregoing licences but in respect of which the Secretary of State is satisfied that a licence should be granted in exercise of his powers under the Improvement of Live Stock (Licensing of Bulls) Act, 1931.

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BAKERS FINED £600

Beitlers Bakeries, Limited, of Wantz Road, Dagenham, who pleaded "Guilty" at Stratford Court to a charge of making dog rusks for greyhound racing tracks out of bread unsuitable for human consumption, were fined a total of £600 and were ordered to pay 20 guineas costs for the unlawful use of flour. Summonses for causing waste of food and for manufacturing feeding-stuffs without a licence were withdrawn. For the defence it was said that instead of selling their returned bread for pig food at £16 a ton they made the rusks, but the extra labour, etc., only allowed them about £1 a ton extra profit.

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BULL SOLD FOR 6,600 GUINEAS

An Argentine buyer, Señor B. Duggan, paid 6,600 guineas for the senior champion and reserve supreme champion, Lawton Nelson, at Perth Shorthorn show and sales. The animal, a white bull, was owned by Major P. H. Henderson, of Coupar Angus, Perthshire. Three red bulls, which sold for 5,000 guineas each, will go to Aberdeen, East Lothian, and Ohio respectively. Five other prices of 3,000 guineas or more were recorded. In 1920, Millhills Comet, the supreme champion, was sold at 6,600 guineas and that remained the record price for the breed until 1946, when Pittodrie Upright was sold for 14,500 guineas.

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AGRICULTURAL SCHOLARSHIPS

The Ministry of Agriculture and Fisheries and the Department of Agriculture for Scotland propose to award, for the academic year beginning October 1st, 1950, or earlier, a limited number of post-graduate scholarships in agricultural economics, husbandry, statistics, and agricultural and dairy engineering. The closing date for applications is May 1st, 1950. Particulars can be obtained from the Secretary, Ministry of Agriculture and Fisheries (Research Branch), 1-4, Cambridge Terrace, Regent's Park, London, N.W.1, or the Secretary, Department of Agriculture for Scotland, St. Andrews House, Edinburgh, 1.

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LIVESTOCK EXPORT GROUP

The report of the Group for the quarter ended December, 1949, mentions that during the period October 1st, 1949 to December 31st, 1949, nine quarantine periods were held, and 362 head of livestock were accommodated in quarantine stations at London, Liverpool and Glasgow for ultimate shipment abroad. In addition, 159 head of livestock were shipped direct (without entering quarantine) from Scotland to Canada and the U.S.A. Total figures show an increase in exports and compare favourably with those for the comparative period last year. The figures of stock passing through quarantine for Canada and the U.S.A. have been maintained and, in the case of direct shipments, show an increase. Details of stock which passed through quarantine and countries to which they were shipped are shown below.

	Oct.-Dec. 1949	Oct.-Dec. 1948
Canada and U.S.A. (*via* Canada)	62	62
Australia	75	62
New Zealand	23	28
Eire	202	186
	362	338
Direct shipments:—		
Canada and U.S.A. (*via* Canada)	159	128
	521	466

DANGEROUS DRUGS IN AMPOULES

The Question of "Overage"

At the January meeting of the Council of the British Medical Association the Science Committee (chairman, Dr. Gordon) presented a report concerning Dangerous Drugs in ampoules, and the question of putting in an excess quantity of solution in order to compensate for the fact that a small amount was inevitably left in the ampoule after injection. It was stated that the Home Office had been in conversation with the Pharmaceutical Society (observes *The Pharmaceutical Journal*) and that the view of the Association had been requested. The Science Committee pointed out that for certain injections a 10 per cent. surplus would be dangerously large, and that "with careful manipulation of the needle it is possible to exhaust an ampoule completely."

Sir Henry Cohen said that this last statement was inaccurate. Some covering of the inner surface of the ampoule must be left, and this was recognised by the Home Office itself, which said, however, that it did not really matter, because the difference in dose was clinically indistinguishable, but this was not the view of those responsible for the U.S. and British Pharmacopoeias, who agreed that it was necessary to have "overage" in ampoules and that that "overage" should be determined by the body which was statutorily responsible for the Pharmacopoeia. His interest in the matter was as a member of the British Pharmacopoeia Commission, which was charged with the responsibility for the monographs in the British Pharmacopoeia, and it was the wish of the Commission to calculate the "overage," in order to ensure that the ampoule would deliver the dose which was necessary. It would not always be 10 per cent., it might be 5 or 2 per cent., depending on the composition of the solution, its viscosity, and the like. The Pharmaceutical Society and the standing Medical Advisory Committee of the Ministry of Health had also urged this "overage." One was faced here with the Home Office objection to modifying its regulations to some extent in order that there might be the slight "overage" which was necessary in order to give the patient what had been prescribed. He hoped that a consistent body of medical opinion, including that of the Science Committee of the Association, would be presented to the Home Office on the subject.

Dr. Gordon said that his committee had not been entirely happy on this point, and would be prepared to reconsider it.

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APHOSPHOROSIS IN IRELAND

The following is the text of a letter contributed to the issue of *Nature* of February 4th by Mr. L. B. O'Moore, M.Sc., M.R.C.V.S., of the Veterinary Research Laboratory, Department of Agriculture, Dublin:—

Following Colonel Doherty's observation[1] that "bog crook," a chronic disease of cattle which has been indigenous in certain districts of Ireland for many generations, was clinically similar to stywesiekte, Sheehy[2], in a series of controlled feeding experiments, showed that the feeding of phosphatic supplements was effective in the cure of this condition and concluded that it was aphosphorosis.

Several hundred determinations of blood inorganic phosphorus and of serum phosphatase have been carried out in this laboratory on samples both from clinical cases of "bog crook" and from apparently normal animals grazing on the same farms. Analyses of the herbage from the appropriate pastures have also been undertaken.

The results of this work show that a sub-clinical or incipient form as well as a clinical form of aphosphorosis exists, and that both forms are widespread in districts where there is a low phosphorus content in the pasture. In both the clinical and sub-clinical forms of this condition, there is a low level of inorganic phosphorus in the blood; only in the clinical form is there a significant rise in serum phosphatase. On phosphorus-deficient pastures both forms often co-exist, but on such pasture the sub-clinical form is always present and in many cases may be detected only by blood analysis. Sub-clinical aphosphorosis is often associated with unthriftiness, low milk yield in dairy cows and anoestrus or oestrus with repeated failures to conceive after service. Of the clinical cases, first-calf heifers usually exhibit the severest symptoms. Mature cows and calves are not so seriously affected.

Experiments show that a change of cattle from phosphorus-deficient to phosphorus-sufficient pasture is attended by a more spectacular rise in blood inorganic phosphorus than takes place if the animals are maintained on phosphorus-deficient pasture and fed a phosphatic supplement.

It has been found that where the blood inorganic phosphorus values of members of a grazing herd are of the order of 1·0—2·0 mgm. per cent. the pasture herbage contains less than 0·35 per cent. P_2O_5 dry matter. Provided that cattle are not receiving supplemen-

tary feeding in addition to pasture grass, the simplest method of establishing phosphorus-deficiency in pasture is by blood analyses of the cattle grazing thereon.

[1] Doherty, A. G. (1944.) Discussion on a Paper by O'Connor, J. D. *Vet. Rec.* **56.** 337.

[2] Sheehy, E. J. (1946.) *Nature.* **157.** 442.

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NOMENCLATURE OF PEST CONTROL PRODUCTS

During the last 25 years great advances have been made in the development of chemicals for pest, disease, weed and rodent control. In the past ten years in particular, many new compounds have been marketed on a world-wide scale for use in the medical, veterinary, agricultural and industrial fields. The chemical names of these compounds have in many instances been too complicated for common use, and shortened forms and trade names have been devised. As there may be several of these applied to one chemical compound, confusion has arisen in commercial descriptions of products and also in the scientific literature.

The problem was discussed at the Commonwealth Entomological Conference in 1948, and a resolution passed urging the appointment of a committee to agree common names for established compounds. The Executive Council of the Commonwealth Agriculture Bureaux referred the recommendation to the British Standards Institution, as the appropriate body in the United Kingdom to deal with the matter. A Technical Committee for Nomenclature of Pest Control Products has now been appointed by the B.S.I. and includes representatives of Commonwealth countries, Government departments, scientific societies and manufacturers' organisations. The committee meets under the chairmanship of Mr. H. J. Jones, A.R.I.C., who is also Chairman of the Pest Control Products Industry Standards Committee of the Institution, with Dr. Catherine Tinker, A.R.I.C., as Secretary.

The committee's terms of reference are: "To prepare standards for the nomenclature for insecticidal and fungicidal chemicals and other pest control products." It is working in the closest collaboration with the Standards organisations in Commonwealth countries, and with the Interdepartmental Committee on Pest Control in the United States of America. Standard organisations in other countries have been informed of the formation of the committee and of its proposed programme, and it is hoped that it may eventually be possible to arrive at international agreement on nomenclature.

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CONFERENCE ON WORLD'S FOOD AND BRITAIN'S NEEDS

The Association of Scientific Workers is holding a conference on "The World's Food and Britain's Needs" at St. Pancras Town Hall, Euston Road, London, W.C.1, during March 4th and 5th. Lord Boyd Orr will preside. The conference is designed not merely to direct attention to the urgency of the food problem, but also to show how it can be tackled scientifically. The programme will be divided into three sessions, with speakers and their subjects as follows:—Session 1, Dr. Julian S. Huxley, "Population Problems," and Mr. F. Le Gros Clark, "The World's Food Problems"; Session 2, Sir George Stapledon, "Britain's Needs and Possibilities," Dr. G. A. Reay, "Fish Utilisation," and Mr. S. A. Barnett, "Prevention of Food Losses"; Session 3, Mr. Ritchie Calder, "Food from Waste Materials," and Lord Boyd Orr, "World Resources and the Distribution of the World's Food." The conference will open with the showing of the documentary film, "The World is Rich," by Paul Rotha, and will end with a résumé by Mr. F. Le Gros Clark, entitled "Conference Survey and Future Action." The delegation fee to the conference is 10s. per delegate; visitors' tickets are 2s. 6d. per session, obtainable from the General Secretary, Association of Scientific Workers, 15, Half Moon Street, Piccadilly, London, W.1.

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WHOLESOME WHALE MEAT

The Whale Meat Advisory Bureau, in an official statement on whale meat for human consumption, states that the whale is less affected by disease than any other edible animal in the world. Of the hundreds of whales inspected last season a slight touch of pleurisy in one whale was the only illness recorded which called for meat to be rejected for human consumption.

[When the whales are killed in the whaling factories which sail from the Tyne to the Antarctic a Government inspector examines the carcases.]

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Medical Research.—It is announced that the King will open the new National Institute for Medical Research at Mill Hill on May 5th. The building was started in 1937 and took five years to complete. During the war it was used as training quarters for members of the W.R.N.S.

World Health Organisation.—The executive board of W.H.O., which concluded its fifth session on February 2nd, has decided that the results of three technical programmes shall be submitted to the third World Health Assembly next May. These are: (1) 39 international standards for biological preparations; (2) the *International Pharmacopoeia*; and (3) the new draft international regulation governing health measures in international trade and travel, which, when adopted, will replace the international sanitary conventions now in use.

Because 12 of the 68 countries which joined the W.H.O. are in arrears with their contributions for 1948 or 1949, or both, the executive board has decided to reduce expenditure in the present year to $6,300,000. The second World Health Assembly had set the level at $7,500,000; and this may be restored if the financial position improves sufficiently.

* * * * *

Hidden Tunnel Revealed by Cow.—A misadventure which cost the life of a valuable pedigree Guernsey cow has disclosed underground passages at Trewithen, a country estate at Grampound, near Truro, the mansion of which dates from 1723. From his bedroom window a grandson of Mr. and Mrs. G. H. Johnstone, who own the estate, saw a hole in the lawn in front of the house. An estate employee descended 20 ft. down the hole on a ladder and, with a lighted candle, advanced several yards before discovering the cow, which was still alive: subsequently it had to be destroyed. A subsidence of the lawn, caused by the weight of the cow, has disclosed tunnelling cut through solid rock.

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Errata

Questions and Answers Correspondence: "The diagnosis of pregnancy in bovins" (*Vet. Rec.* **62.** 98) the fourth sentence of paragraph three of Mr. J. L. Hancock's letter, *for* "really" *read* "readily." *i.e.*, ". . . the problem is not how to recognise subtle changes in what is readily palpable. . . ."

Correspondence.—We regret that Mr. K. G. Luckin, the Final Year writer of a letter in our last issue, was the victim of a printer's error in being represented as describing hmiself as a First Year Student.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

HARD PAD DISEASE

Sir,—I am prompted to write this letter rather earlier than I had intended by the number of queries I have received from colleagues on the therapeutic use of distemper virus in hard pad disease and the variation in response reported by them.

Further work now being done on the use of distemper virus in a large number of clinical cases of hard pad disease already indicates that the full response to the therapeutic injections of live distemper virus, as shown by the Huskies, is evinced only by dogs possessing an active immunity against distemper. Where no history of distemper or inoculation exists, the injections of virus evoke less response and may require frequent repetition before satisfactory clinical response is shown.

The indiscriminate use of live virus must be avoided and care should be taken to satisfy oneself that one is dealing with hard pad disease from any combination of the following:—

1. Contact with hard pad.
2. Diarrhoea with pyrexia.
3. Injection of the sclera.
4. Hardening or flattening of the pads.

I then enquire into any history of distemper or immunisation and the method. If I am satisfied that the dog is probably immune to distemper, I proceed with the virus injection. If not satisfied on this score, I inject distemper vaccine and follow in seven days with live virus. In either case, unless there is complete resolution of symptoms in seven days, a further injection of virus is given and may be repeated again seven days later. It should be noted that the virus used in this work is freshly prepared emulsion of dog's spleen virus.

Finally, I should like to acknowledge the co-operation and assistance of Mr. MacIntyre and Dr. Trevan in this work.

Yours faithfully,

C. E. Woodrow

14, Pont Street,
Knightsbridge,
London, S.W.1.
February 14th, 1950.

THE OCCURRENCE OF *HEPATITIS CONTAGIOSA CANIS* (RUBARTH) IN GREAT BRITAIN

Sir,—Mr. Elam's letter[1] mentioned the possibility that the disease in greyhounds which he described was the condition which Rubarth[5] designated *Hepatitis contagiosa canis* and accepted as identical with fox encephalitis (Green)[2]. Since then a number of veterinary surgeons have asked if we have evidence that this disease does exist in Britain. Our affirmative reply has led to requests for further information and has resulted in some pressure to publish a note of the observations made in these Laboratories in conjunction with my colleagues Mr. A. B. MacIntyre and Dr. D. J. Trevan. This we have agreed to do although Innes[3] has reviewed Rubarth's publication and recorded having seen three cases in British dogs. We are aware, from personal communications, that other British workers in this field are also satisfied that within the last year or so they have seen the condition.

While the mass of old material catalogued in the histology department here has not been re-examined recently, we are satisfied that none of the cases on which we based our paper, "Observations on Canine Encephalitis," presented to the 1948 Congress at Southport[4], included any with the pathological features of *Hepatitis contagiosa canis*. It would seem, then, that during that period, May, 1946 to June, 1948, *Hepatitis contagiosa canis* was, at least, uncommon in Britain. Yet during 1949, 39 cases have reached our hands through veterinary surgeons practising in London, the Home Counties, Westmorland, North Riding of Yorkshire, Lancashire, Warwickshire, Lincolnshire, Northamptonshire, Worcestershire, Glamorgan, Monmouthshire, Somersetshire and Devonshire.

On this limited experience our findings—so far as they have gone—fit closely those of Rubarth. Our cases have mostly been in dogs under one year old; commonly puppies recently weaned, others only a few days old. Distinctive symptoms have not always been observed. Usually some change in mental status has been followed quickly by convulsions and death but dogs have died of this disease without premonitory symptoms having been observed. In others, loss of condition marked anaemia, weakness and lethargy have been noted, the dog passing rapidly into a semi-comatose state and dying within two days of the onset of symptoms. The occurrence of a convulsive state shortly before death has been common. We have no good evidence that the disease does occur in a milder form from which the animal may recover. Certainly in some litters the mortality rate has been high.

While differential diagnosis has not always been easy, we have come to regard the rapid development of lethargy quickly followed by coma, possibly convulsions, and by death as characteristic. We have not encountered protracted cases which could be confused with distemper or so-called hard pad disease.

We have come to accept certain findings at *post-mortem* examination as sufficiently characteristic to merit a tentative diagnosis. Subcutaneous haemorrhage suggestive of quite extensive bruising has not always been present, but the enlarged lymphatic glands have shown haemorrhages and the liver has always been distinctly enlarged, having a mottled appearance due to intralobular haemorrhage. It has regularly been covered with a fibrinous deposit, often best seen in strands when the lobes are parted. The lobules have been distinct and the wall of the gall bladder commonly has been greatly thickened and greyish in colour.

Our diagnosis has, however, been based very largely on the histopathology which has fitted the description so admirably set out and illustrated by Rubarth in his monograph.

While there is still room for a good deal of confusion in this difficult field, we believe the acceptance of the fact that *Hepatitis contagiosa canis* does occur fairly extensively in this country will assist our practitioner colleagues to add quite quickly to our knowledge of this disease and its significance. For our part we are ready to assist by the histological examination of suitable material with a view to determining a tentative diagnosis. While the receipt of the carcase soon after death affords the best opportunity for diagnosis, we would be satisfied with small pieces of liver; some fixed in saline containing 10 per cent. formalin and sent packed in damp gauze, other pieces fresh in a sterile container. We would be pleased to provide suitable containers against the possible opportunity to collect material.

Yours faithfully,

Wellcome Research Laboratories, Beckenham, Kent. R. F. Montgomerie.

February 15th, 1950.

1 Elam, C. W. (1950.) *Vet. Rec.* **62**. 54.
2 Green, R. G. (1931.) *Amer. J. Hyg.* **13**. 201.
3 Innes, J. R. M. (1949.) *Vet. Rec.* **61**. 173.
4 MacIntyre, A. B., Trevan, D. J., & Montgomerie, R. F. (1948.) *Ibid.* **60**. 635.
5 Rubarth, S. (1947.) *Acta. Path. Microbiol. Scand.* Suppl. LXIX.

DEMODECTIC MANGE. THE VIABILITY OF *DEMODEX* ON TRANSFERENCE FROM SKIN TO SLIDE

Sir,—With reference to Mr. Hogarth's letter on this subject (*Vet. Rec.* **62**. No. 7, February 18th, 1950) it is not the case that in Britain movement of the mite on the slide is never seen. K. Unsworth (*J. comp. Path.* **56**. No. 2, April, 1946) working in Liverpool, records that "parasites not infrequently remain quiescent," but they could survive in liquid paraffin for nine days, and show movement after 22 hours in a mixture of 0·6 per cent. hydrochloric acid and 0·5 per cent. pepsin.

The writer has noted slight but definite movement of *demodex* very rarely, but has not particularly looked for it, as it is considered unimportant, though interesting. Possibly gentle heating of the slide would increase movement, but the simple technique used in this clinic for the examination of skin scrapings precludes this. The method, similar to that already described in *The Veterinary Record* by Mr. W. L. Weipers, is based on four points:—

1. Five per cent. KOH is rubbed well into the site to be scraped, to make the scraping stick to the knife and act as a clearing agent. This is considered very important. 2. Enough skin is scraped, not too much or too little. 3. The scraping is placed in *one piece* on a slide (a diffuse preparation is tedious to examine). 4. Another slide is placed on top, to spread the scraping, allow light to penetrate it, and enable slight alterations of position of material in any one field to be made by pressing on this slide. Using a microscope without a mechanical stage, this is sufficient for the diagnosis of nearly all cases of demodectic mange and 50 per cent. of the sarcoptic type, in which the demonstration of one sarcopt, one egg or empty egg-shell is diagnostic. When the scraping is found to be too thick, the top slide is moved, one or at most two drops of 5 per cent. KOH are added, heated strongly, and re-examination made.

In the only trial made since Mr. Hogarth's letter was published, preparation, scraping, examination and a positive diagnosis of *demodex* infestation were made in one minute, without using undue haste.

This form of mange is very common in "street" dogs in Glasgow, 650 cases, confirmed microscopically, having been recorded in this clinic during the four years May, 1945 to April, 1949, an incidence of more than one in 25 in canine cases presented for the first time for treatment of any condition.

Monthly records show no significant increase of this incidence during any particular season of the year.

Yours faithfully,

University of Glasgow, Veterinary School, Small-animal Clinic. Ian M. Lauder.

February 19th, 1950.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Parasitic Mange*	Sheep Scab	Swine Fever
Jan. 16th to 31st, 1950	24	—	11	—	5	—
Corresponding period in—						
1949	4	—	30	—	4	1
1948	3	—	17	—	4	1
1947	4	21	—	—	8	—
Jan. 1st to Jan. 31st, 1950	37	—	21	—	10	—
Corresponding period in—						
1949	16	—	45	—	7	2
1948	6	—	54	—	10	3
1947	5	41	—	—	12	2

Note.—The figures for the current year are approximate only.
* Excluding outbreaks in Army Horses.

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at January 31st, 1950, was as follows:—

England	Wales	Scotland	Total (Great Britain)
19,493	13,916	12,325	45,734